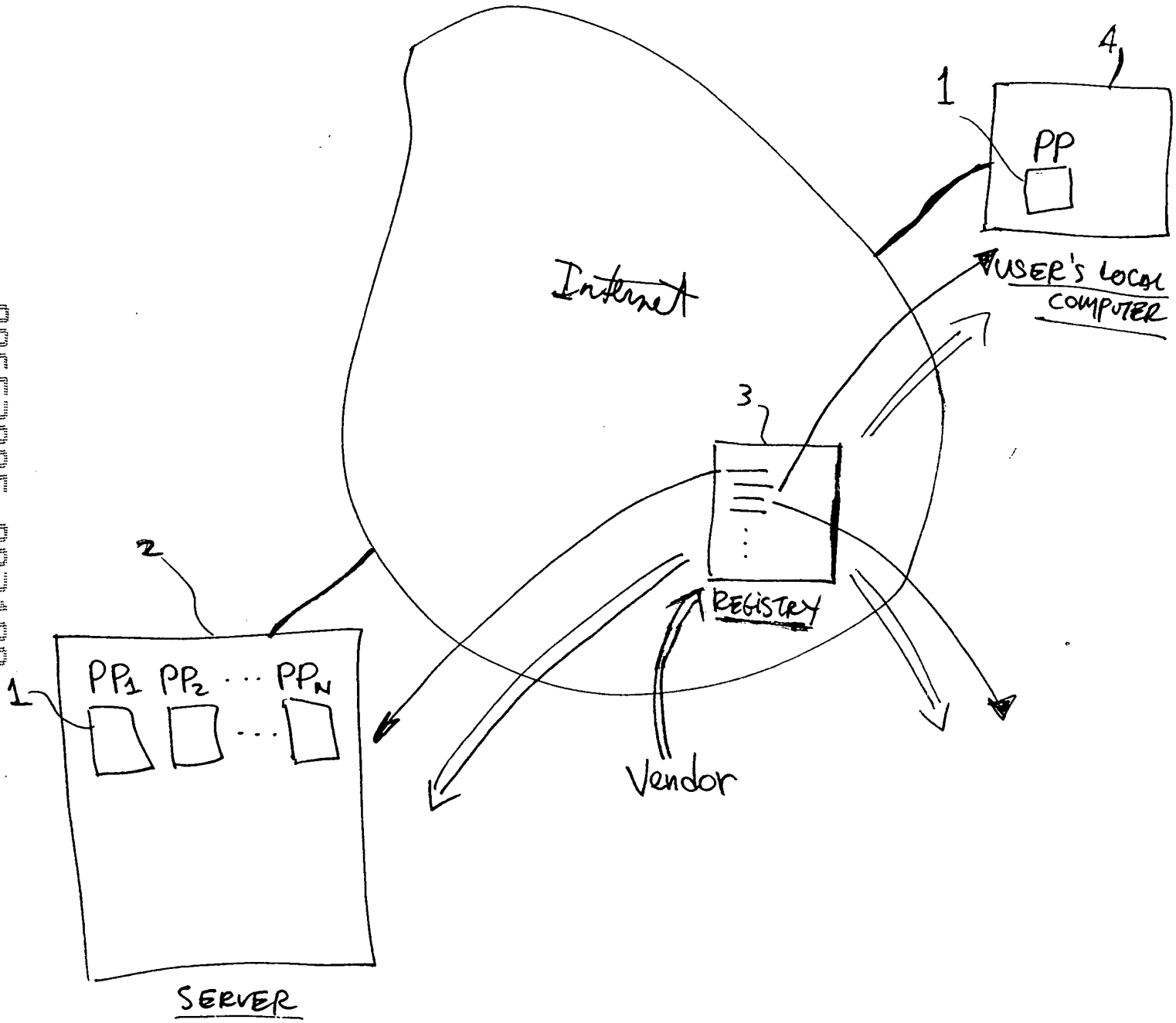
FIG. 1A

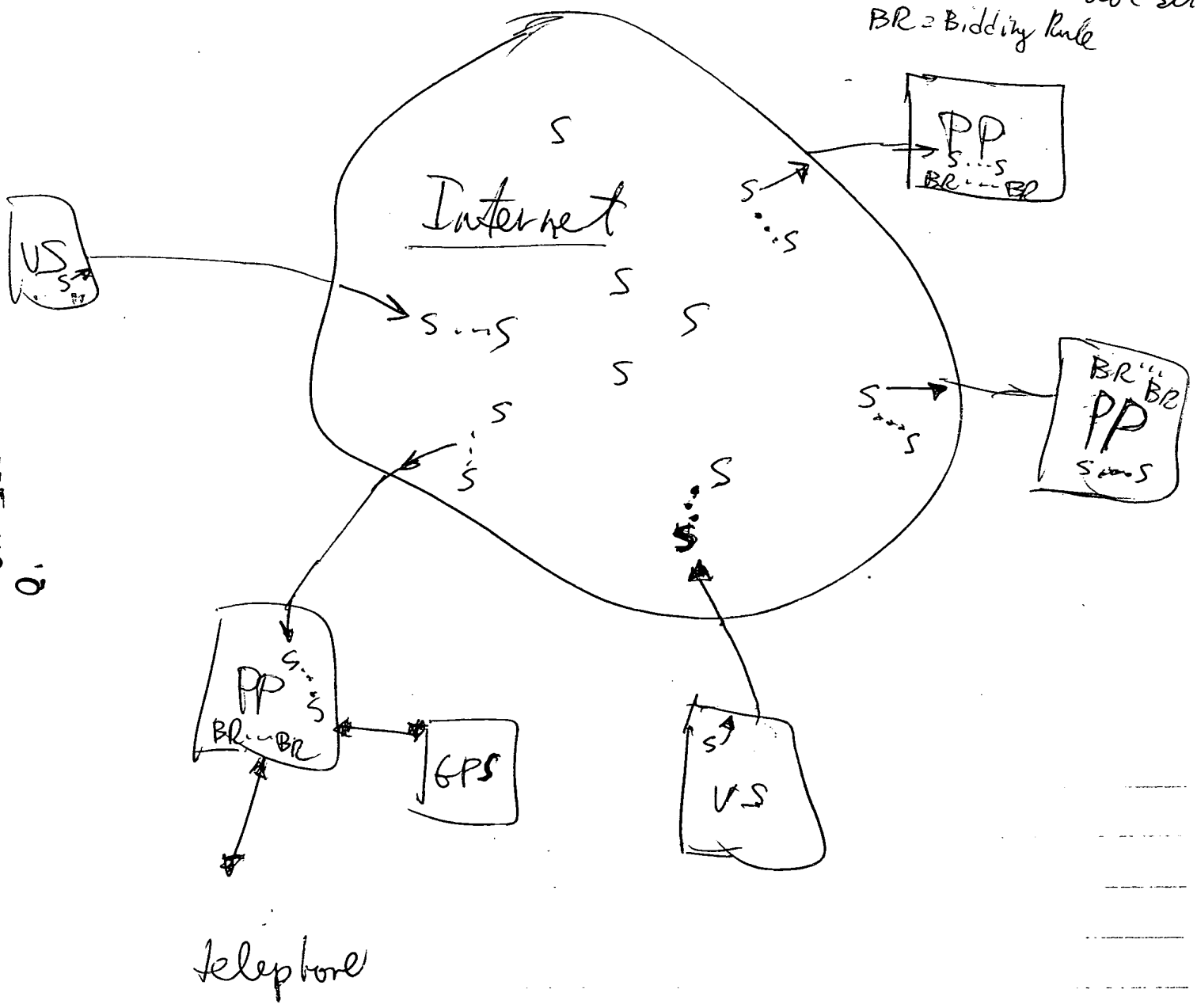


→ indicates network address

⇒ indicates software access

PP = personal page

PP = personal page
VS = vendor site
S = vendor scr
BR = Bidding Rule



SCAN_11
Q.

telephone

Fig 1B

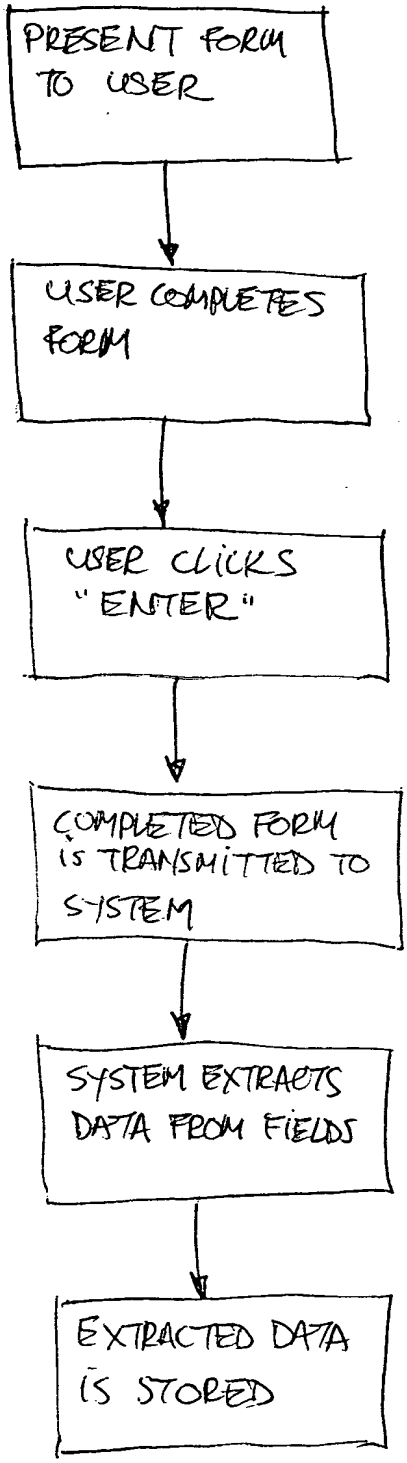

PRESENT FORM TO USER
USER COMPLETES FORM
USER CLICKS "ENTER"
COMPLETED FORM IS TRANSMITTED TO SYSTEM
SYSTEM EXTRACTS DATA FROM FIELDS
EXTRACTED DATA IS STORED

Fig 2

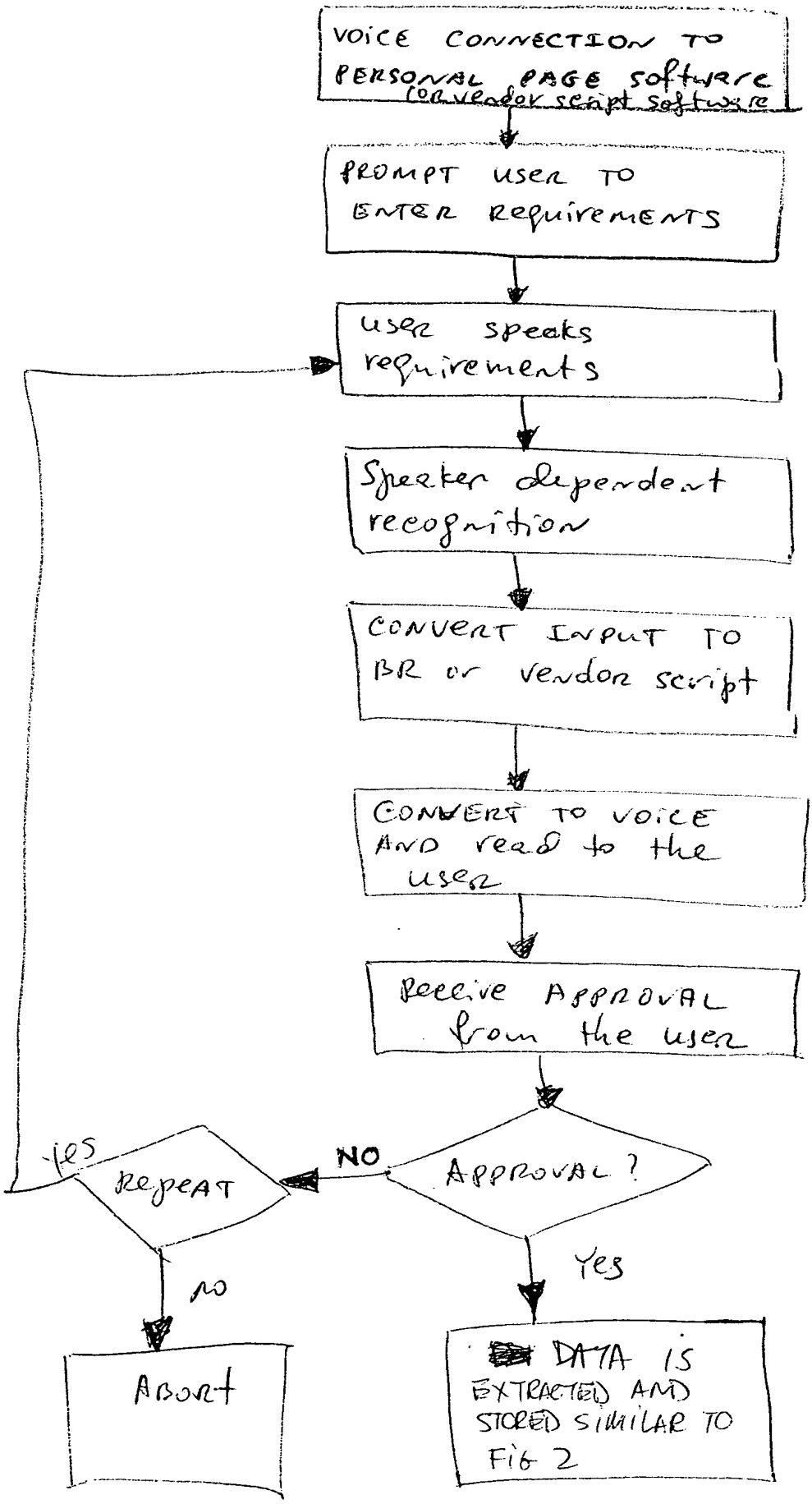

VOICE CONNECTION TO PERSONAL PAGE software (or vendor script software
PROMPT USER TO ENTER REQUIREMENTS
USER SPEAKS requirements
Speaker dependent recognition
CONVERT INPUT TO BR or vendor script
CONVERT TO VOICE AND read to the USER
Receive APPROVAL from the USER
APPROVAL ?
NO
Yes
REPEAT
yes
no
ABORT
DATA IS EXTRACTED AND STORED SIMILAR TO Fig 2

Fig 3

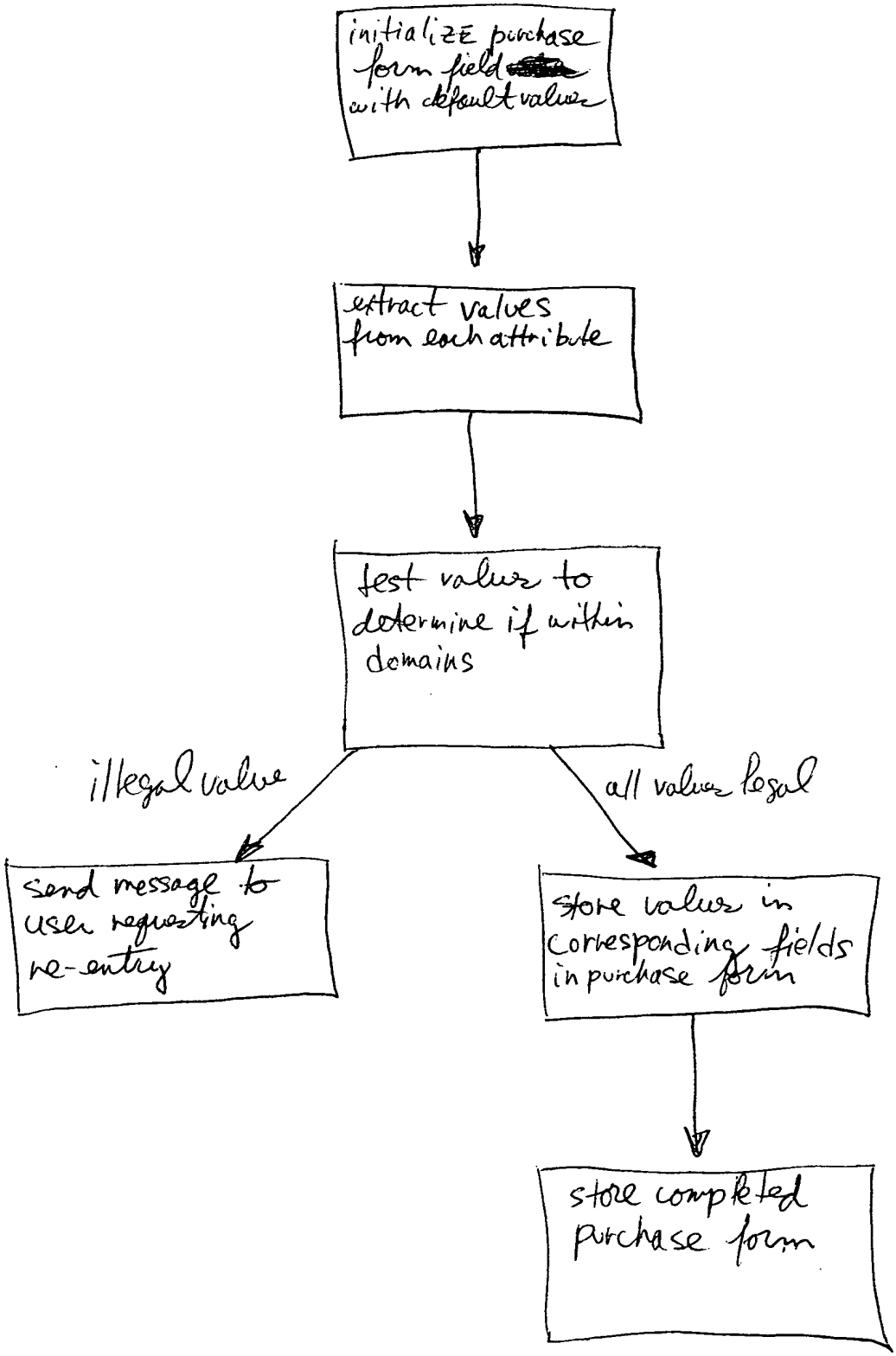
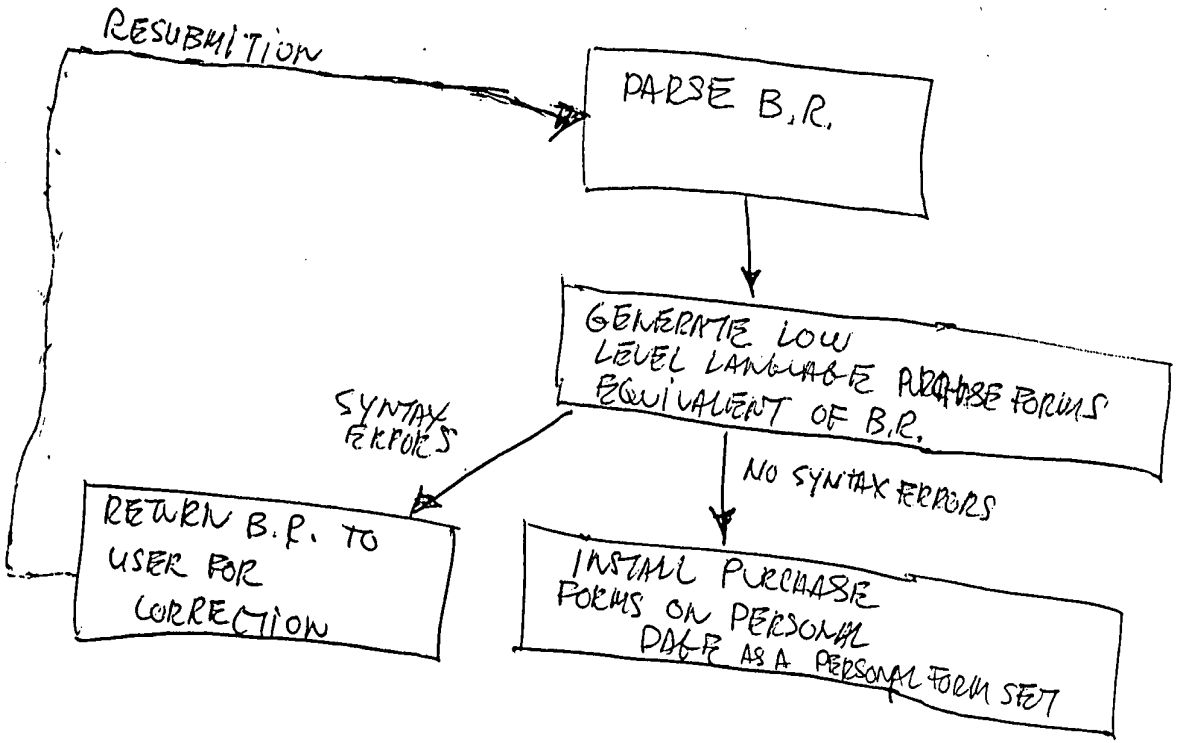

initialize purchase form field with default value
extract values from each attribute
test value to determine if within domains
illegal value
all value legal
send message to user requesting re-entry
store value in corresponding fields in purchase form
store completed purchase form

FIG 4

Fig 5



0663095 .093100

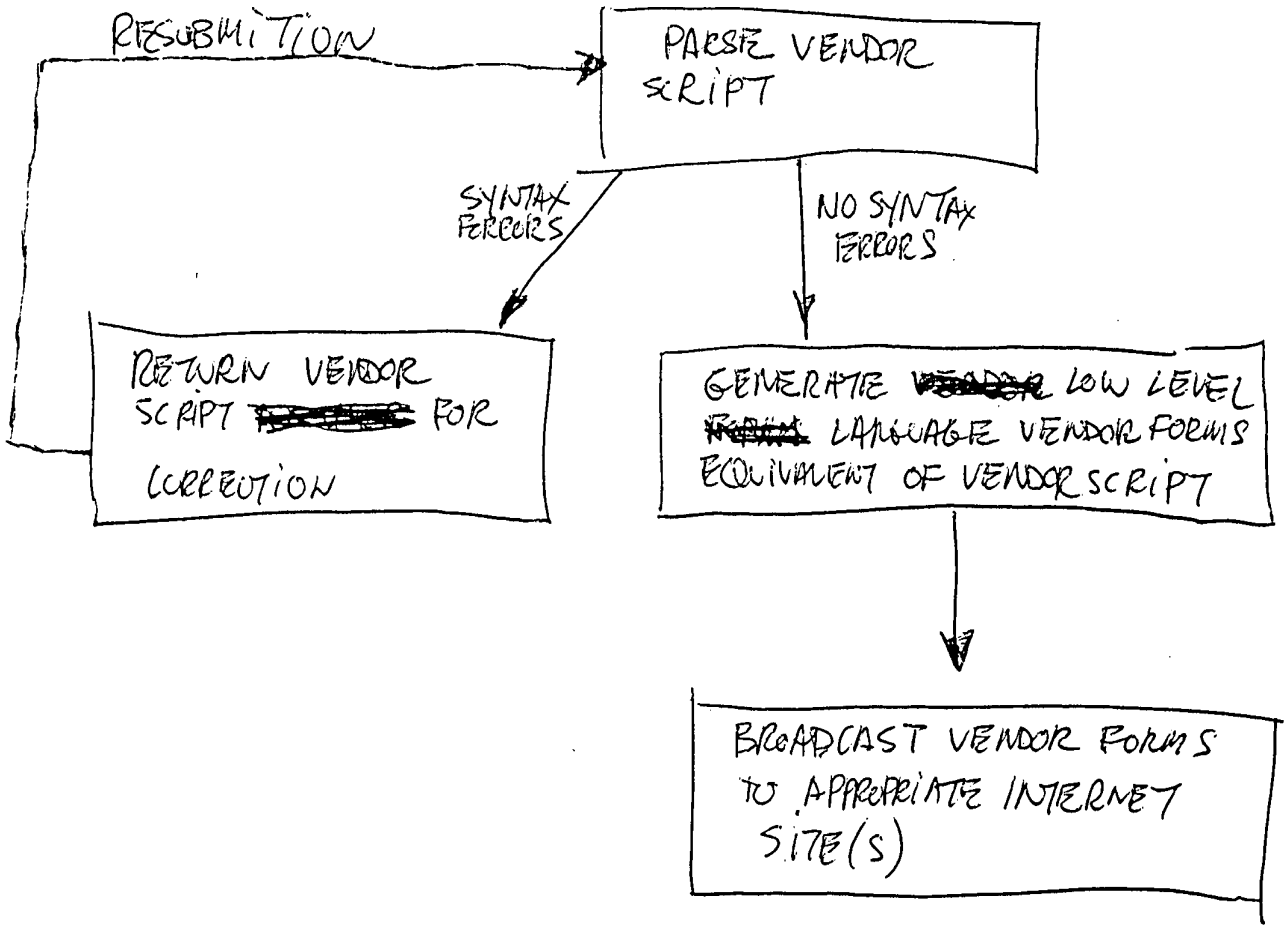

RESUBMITION
PARSE VENDOR SCRIPT
SYNTAX ERRORS
NO SYNTAX ERRORS
RETURN VENDOR SCRIPT FOR CORRECTION
GENERATE LOW LEVEL LANGUAGE VENDOR FORMS EQUIVALENT OF VENDOR SCRIPT
BROADCAST VENDOR FORMS TO APPROPRIATE INTERNET SITE(S)

Fig 6

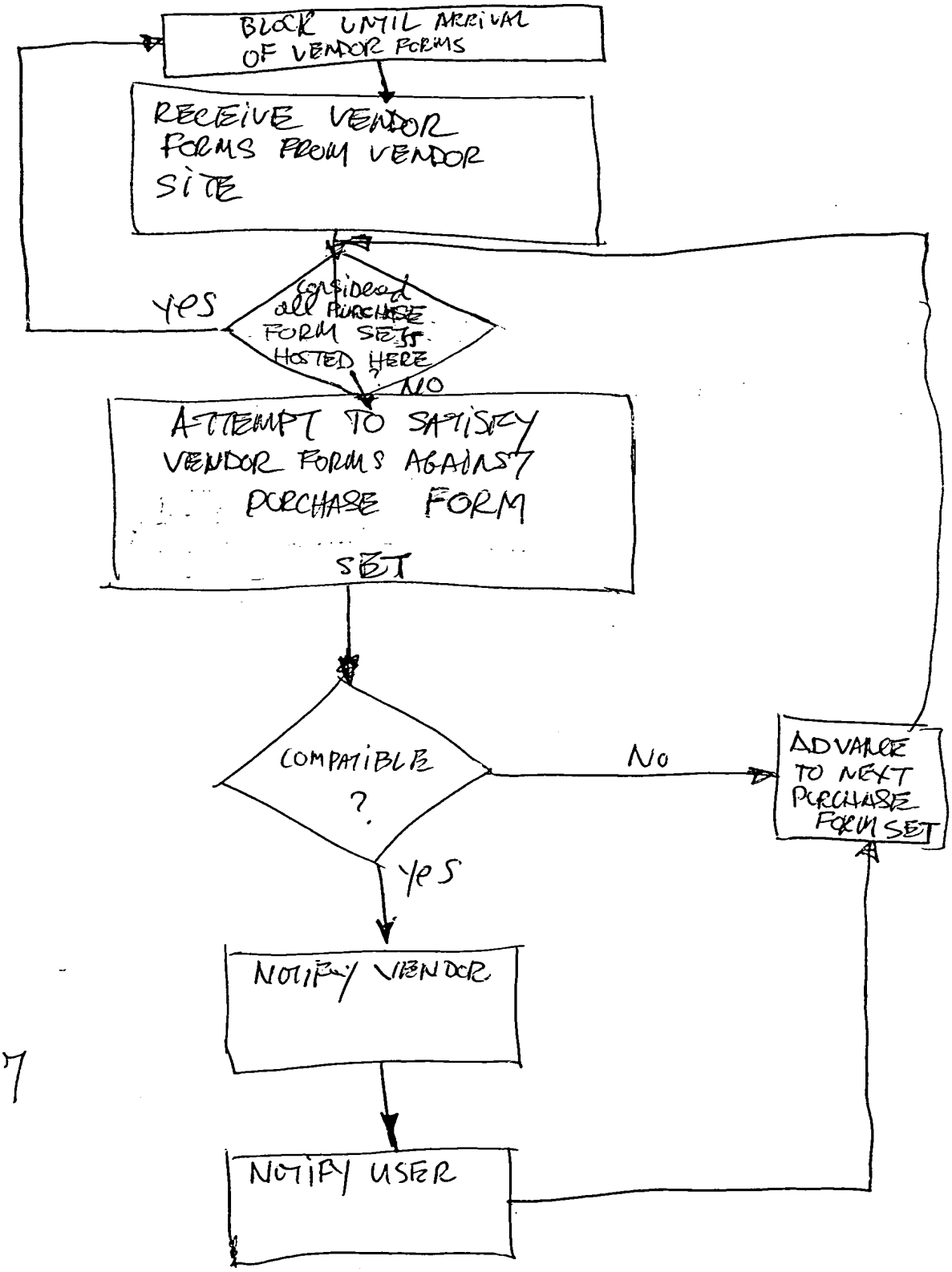

BLOCK UNTIL ARRIVAL OF VENDOR FORMS
RECEIVE VENDOR FORMS FROM VENDOR SITE
YES
CONSIDERED ALL PURCHASE FORM SETS HOSTED HERE ?
NO
ATTEMPT TO SATISFY VENDOR FORMS AGAINST PURCHASE FORM SET
COMPATIBLE ?
No
ADVANCE TO NEXT PURCHASE FORM SET
YES
NOTIFY VENDOR
NOTIFY USER

Fig 7

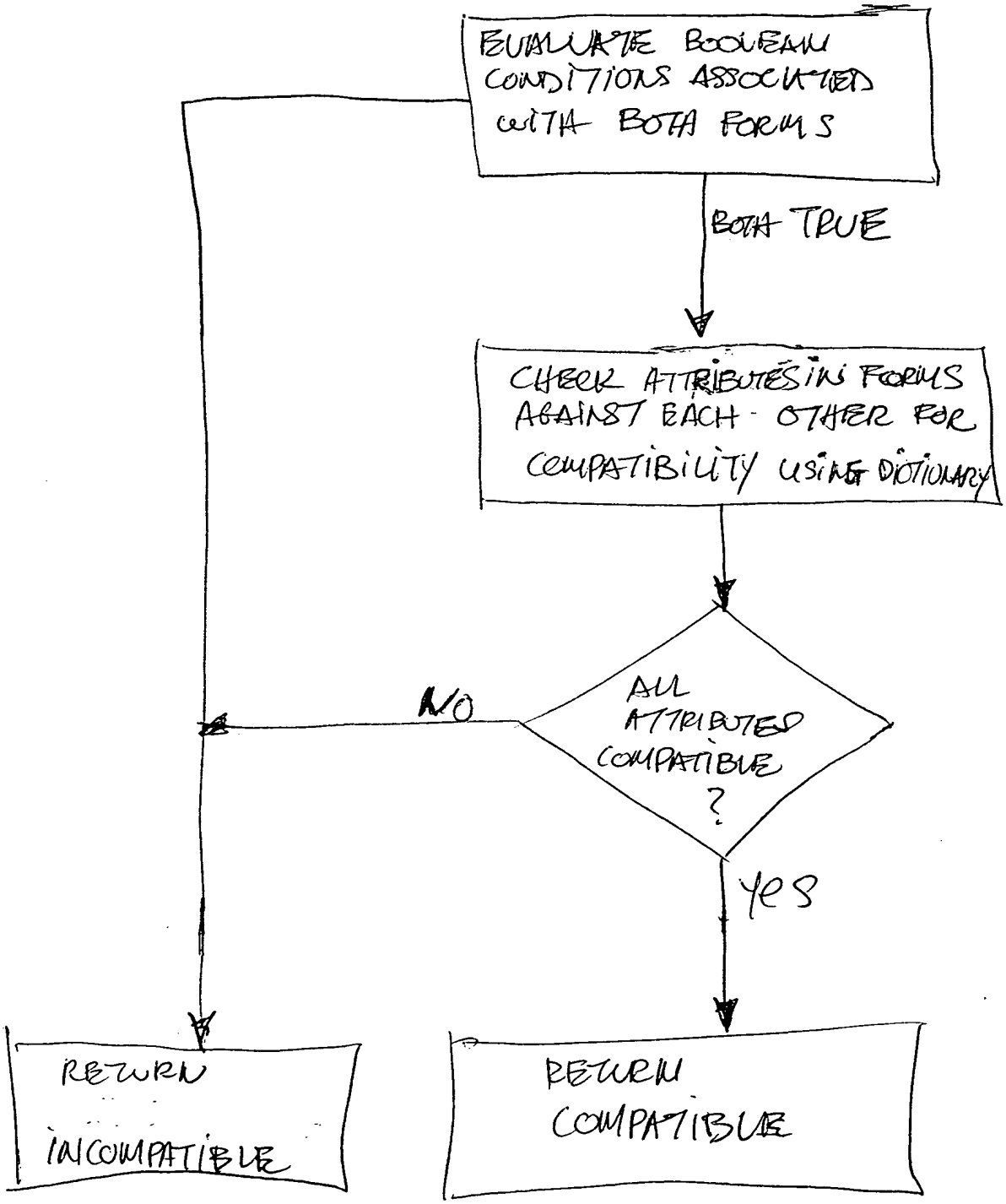

EVALUATE BOOLEAN CONDITIONS ASSOCIATED WITH BOTH FORMS
BOTH TRUE
CHECK ATTRIBUTES IN FORMS AGAINST EACH OTHER FOR COMPATIBILITY USING DICTIONARY
ALL ATTRIBUTES COMPATIBLE ?
NO
YES
RETURN INCOMPATIBLE
RETURN COMPATIBLE

Fig 8

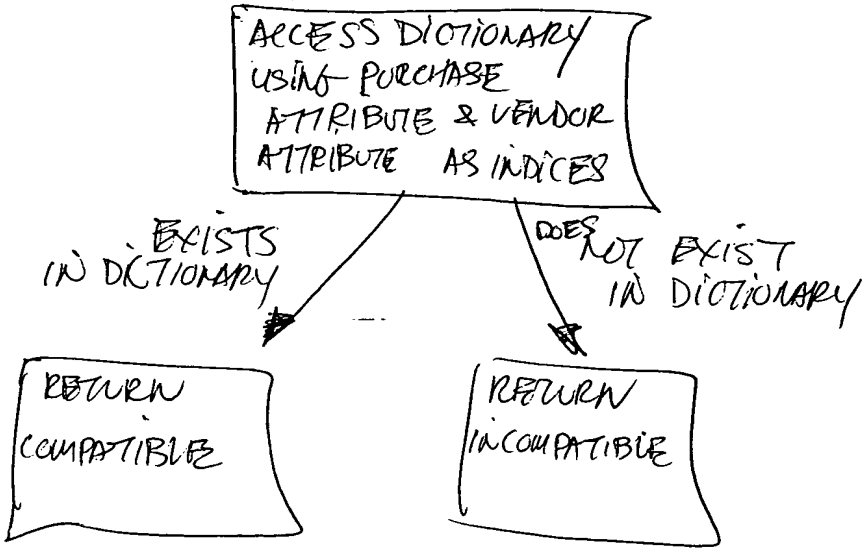

ACCESS DICTIONARY USING PURCHASE ATTRIBUTE & VENDOR ATTRIBUTE AS INDICES
EXISTS IN DICTIONARY
DOES NOT EXIST IN DICTIONARY
RETURN COMPATIBLE
RETURN INCOMPATIBLE

Fig 9

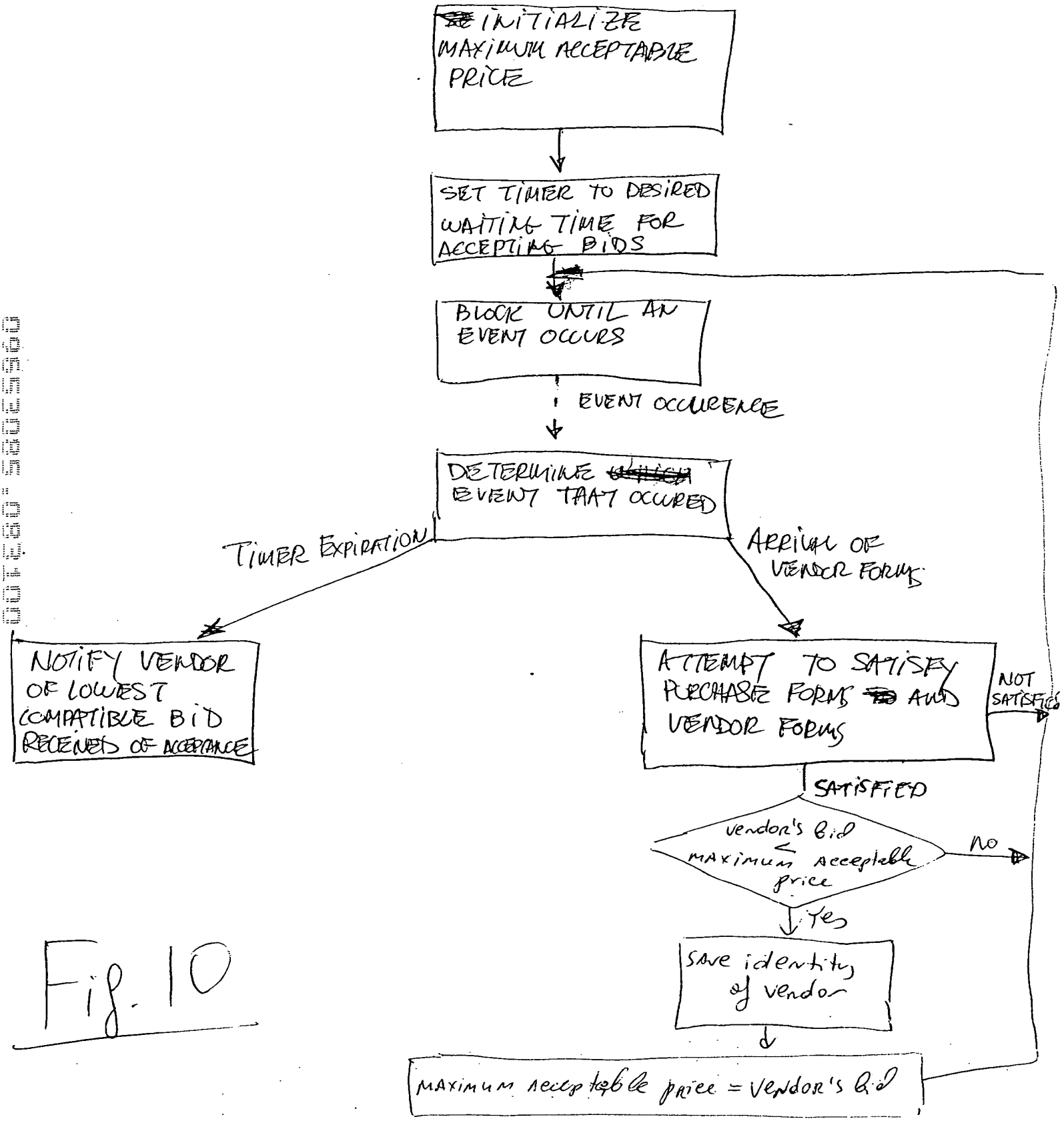

INITIALIZE MAXIMUM ACCEPTABLE PRICE
SET TIMER TO DESIRED WAITING TIME FOR ACCEPTING BIDS
BLOCK UNTIL AN EVENT OCCURS
EVENT OCCURRENCE
DETERMINE EVENT THAT OCCURED
TIMER EXPIRATION
ARRIVAL OF VENDOR FORMS
NOTIFY VENDOR OF LOWEST COMPATIBLE BID RECEIVED OF ACCEPTANCE
ATTEMPT TO SATISFY PURCHASE FORM AND VENDOR FORMS
NOT SATISFIED
SATISFIED
vendor's Bid < maximum acceptable price
NO
YES
save identity of vendor
MAXIMUM acceptable price = vendor's Bid

Fig. 10

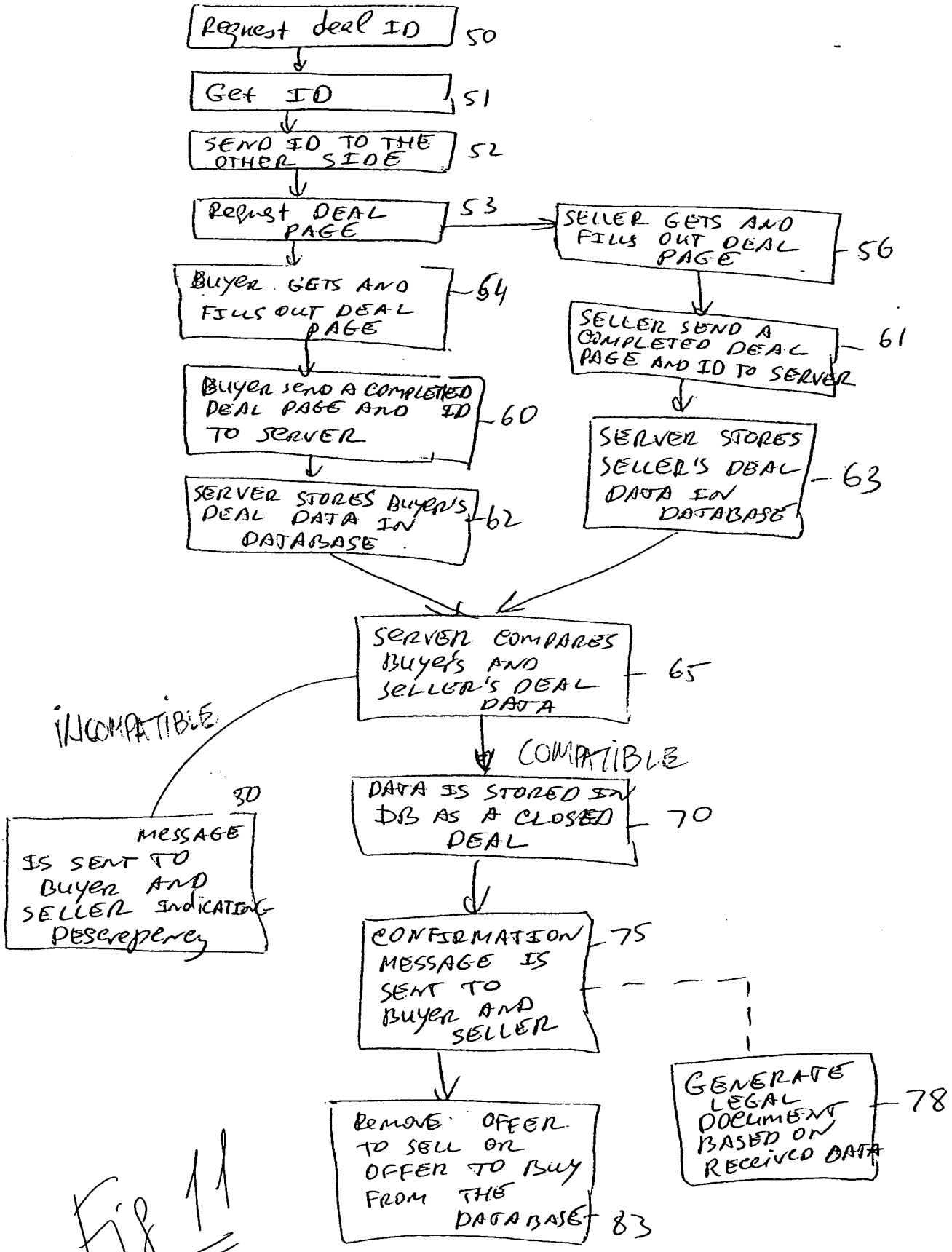

Request deal ID
50
Get ID
51
SEND ID TO THE OTHER SIDE
52
Request DEAL PAGE
53
SELLER GETS AND FILLS OUT DEAL PAGE
56
BUYER GETS AND FILLS OUT DEAL PAGE
64
SELLER SEND A COMPLETED DEAL PAGE AND ID TO SERVER
61
BUYER SEND A COMPLETED DEAL PAGE AND ID TO SERVER
60
SERVER STORES SELLER'S DEAL DATA IN DATABASE
63
SERVER STORES BUYER'S DEAL DATA IN DATABASE
62
SERVER COMPARES BUYER'S AND SELLER'S DEAL DATA
65
INCOMPATIBLE
COMPATIBLE
MESSAGE IS SENT TO BUYER AND SELLER INDICATING DESCREPENCY
30
DATA IS STORED IN DB AS A CLOSED DEAL
70
CONFIRMATION MESSAGE IS SENT TO BUYER AND SELLER
75
GENERATE LEGAL DOCUMENT BASED ON RECEIVED DATA
78
REMOVE OFFER TO SELL OR OFFER TO BUY FROM THE DATABASE
83

Fig 11

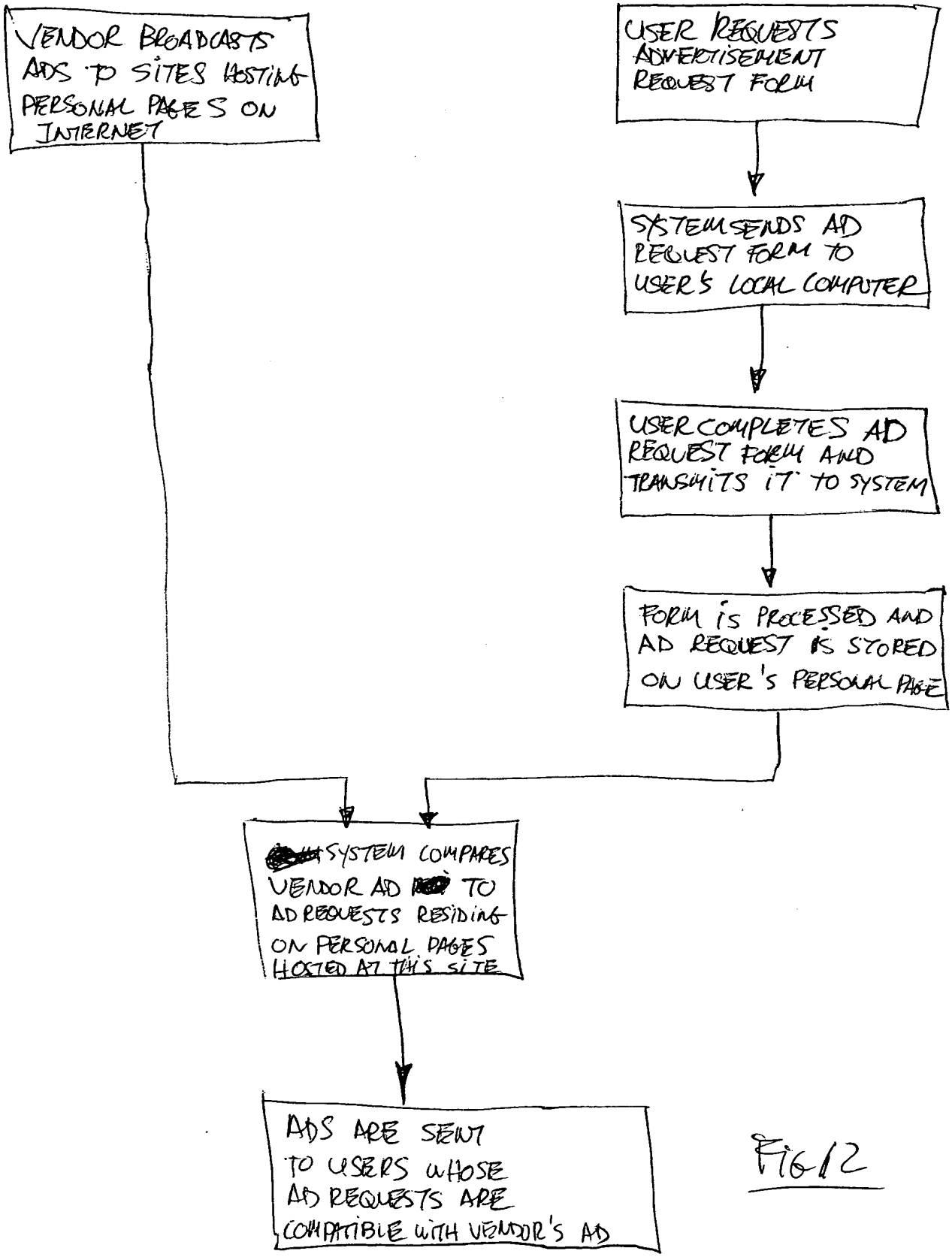

VENDOR BROADCASTS ADS TO SITES HOSTING PERSONAL PAGES ON INTERNET
USER REQUESTS ADVERTISEMENT REQUEST FORM
SYSTEM SENDS AD REQUEST FORM TO USER'S LOCAL COMPUTER
USER COMPLETES AD REQUEST FORM AND TRANSMITS IT TO SYSTEM
FORM IS PROCESSED AND AD REQUEST IS STORED ON USER'S PERSONAL PAGE
SYSTEM COMPARES VENDOR AD TO AD REQUESTS RESIDING ON PERSONAL PAGES HOSTED AT THIS SITE
ADS ARE SENT TO USERS WHOSE AD REQUESTS ARE COMPATIBLE WITH VENDOR'S AD

Fig 12

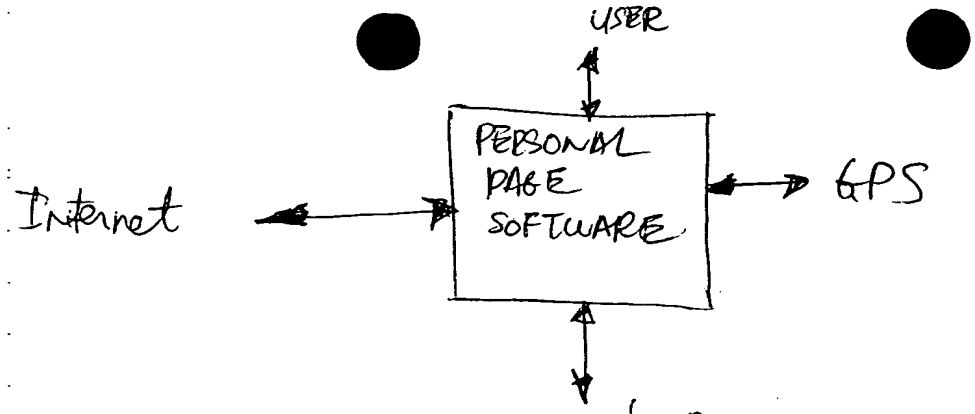


Fig. 13

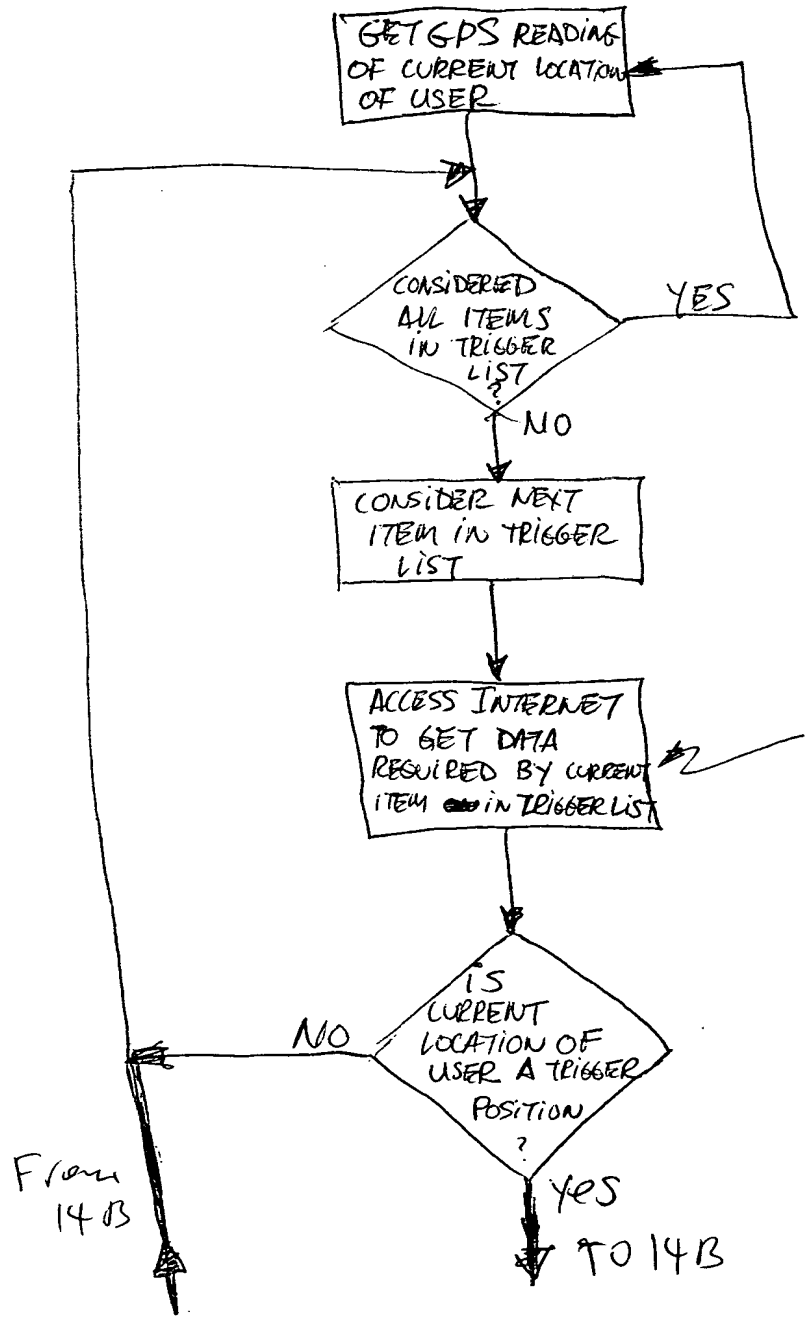


Fig. 14A

6) cont.

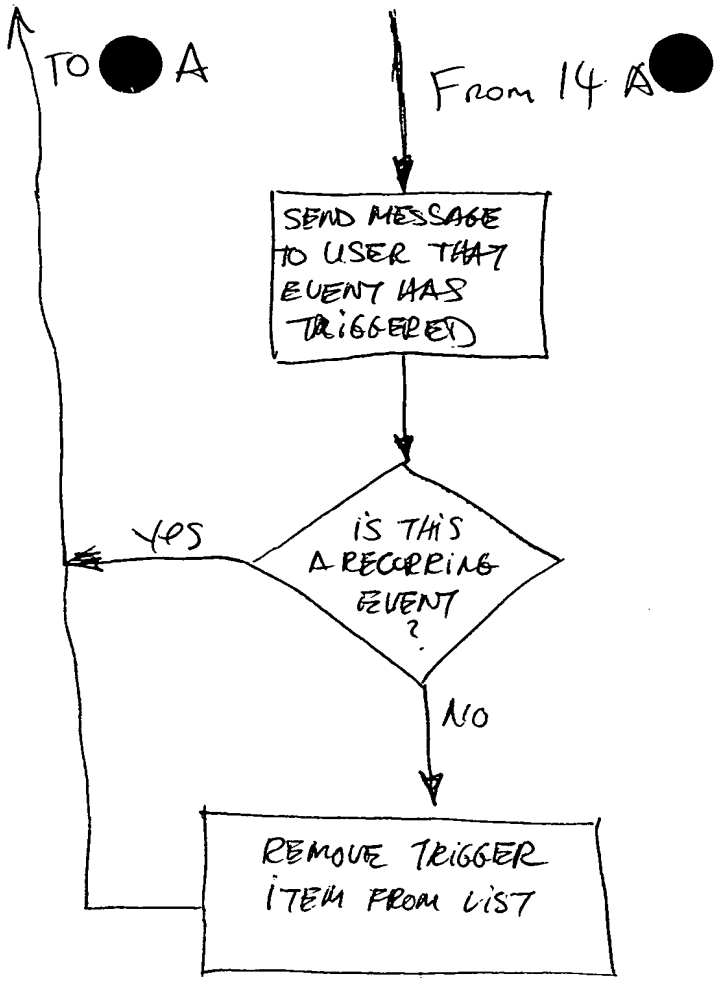


Fig 14B

5,959,621

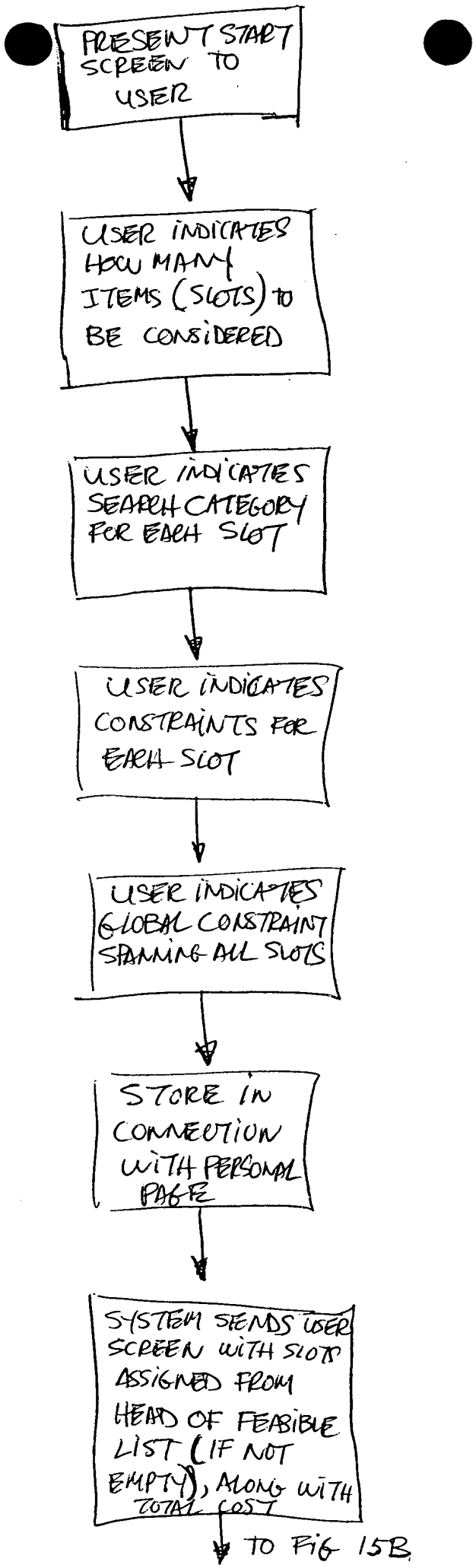

PRESENT START SCREEN TO USER
USER INDICATES HOW MANY ITEMS (SLOTS) TO BE CONSIDERED
USER INDICATES SEARCH CATEGORY FOR EACH SLOT
USER INDICATES CONSTRAINTS FOR EACH SLOT
USER INDICATES GLOBAL CONSTRAINT SPANNING ALL SLOTS
STORE IN CONNECTION WITH PERSONAL PAGE
SYSTEM SENDS USER SCREEN WITH SLOTS ASSIGNED FROM HEAD OF FEABIBLE LIST (IF NOT EMPTY), ALONG WITH TOTAL COST
TO FIG 15B

FIG 15A

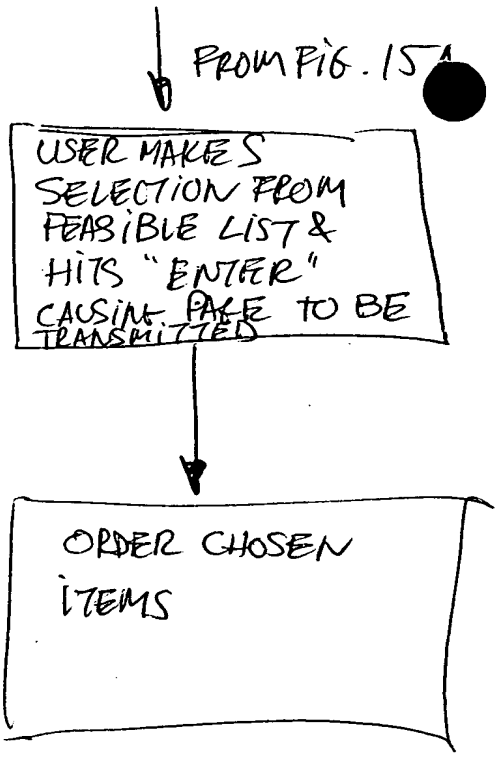

FROM FIG. 15A
USER MAKES SELECTION FROM FEASIBLE LIST & HITS "ENTER" CAUSING PAGE TO BE TRANSMITTED
ORDER CHOSEN ITEMS

FIG. 15B

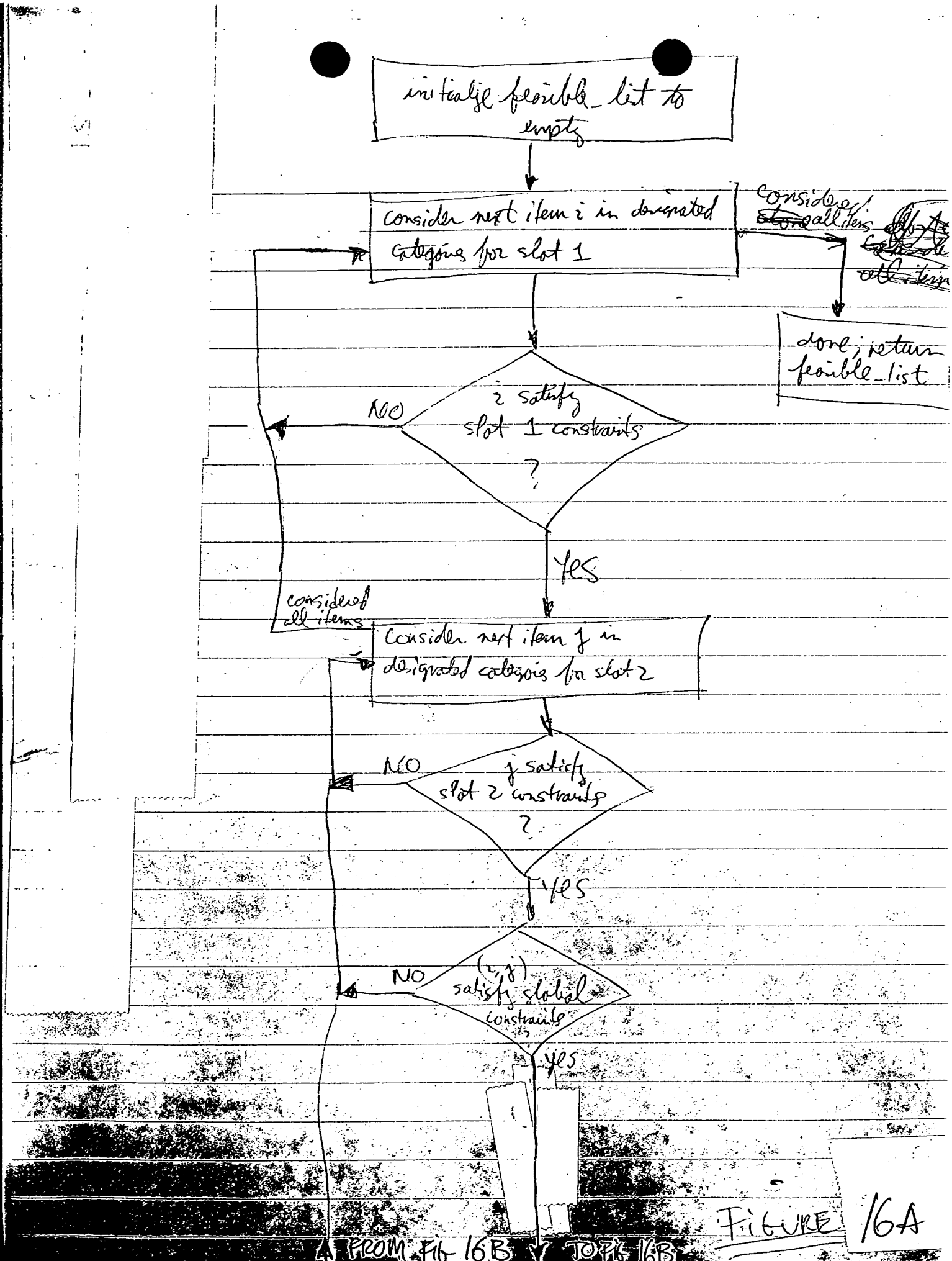

initialize feasible_list to empty
consider next item i in designated categories for slot 1
considered all items
done; return feasible_list
i satisfy slot 1 constraints ?
NO
YES
considered all items
consider next item j in designated categories for slot 2
j satisfy slot 2 constraints ?
NO
YES
(i,j) satisfy global constraints
NO
YES
FROM FIG 16B
TO FIG 16B

FIGURE 16A

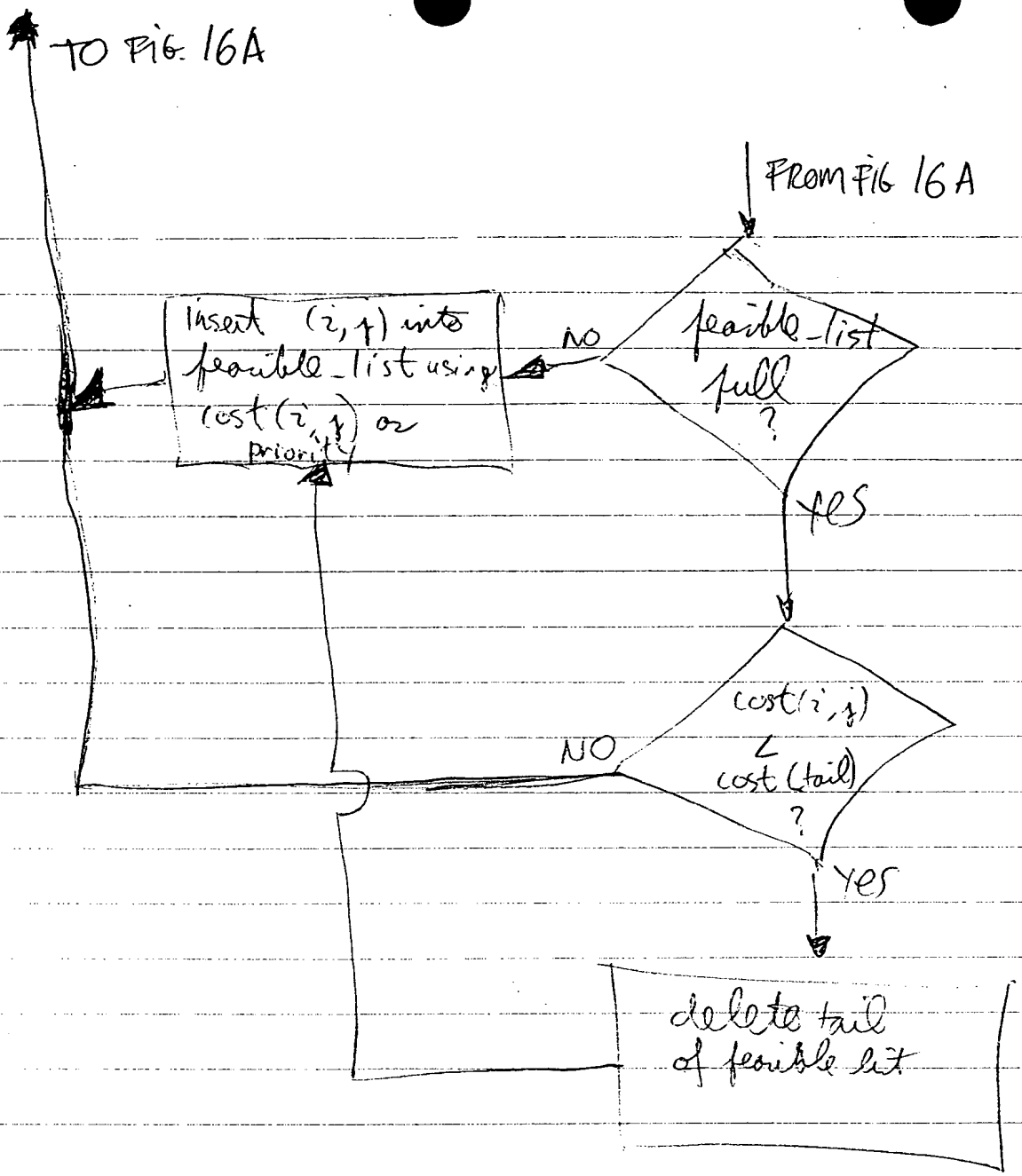

TO FIG. 16A
FROM FIG 16A
feasible_list full ?
NO
insert (i, j) into feasible_list using cost(i, j) or priority
yes
cost(i, j) < cost(tail) ?
NO
yes
delete tail of feasible list

Figure 16B

```
feasible_list = empty;    // priority queue ; cost(a,b) is priority
for (i ranging over items in its designated categories)
    if (i satisfies slot 1 constraints)
        for (j ranging over items in its designated categories)
            if (j satisfies slot 2 constraints)
                if ((i,j) satisfies global constraints)
                    if feasible_list not full
                        insert (i,j), and cost(i,j) into feasible_list;
                    else if (cost(i,j) < cost(tail))
                        { delete tail from feasible_list;
                          insert (i,j), and cost(i,j) into feasible_list;
                        }
return (feasible_list);
```

Fig 16C

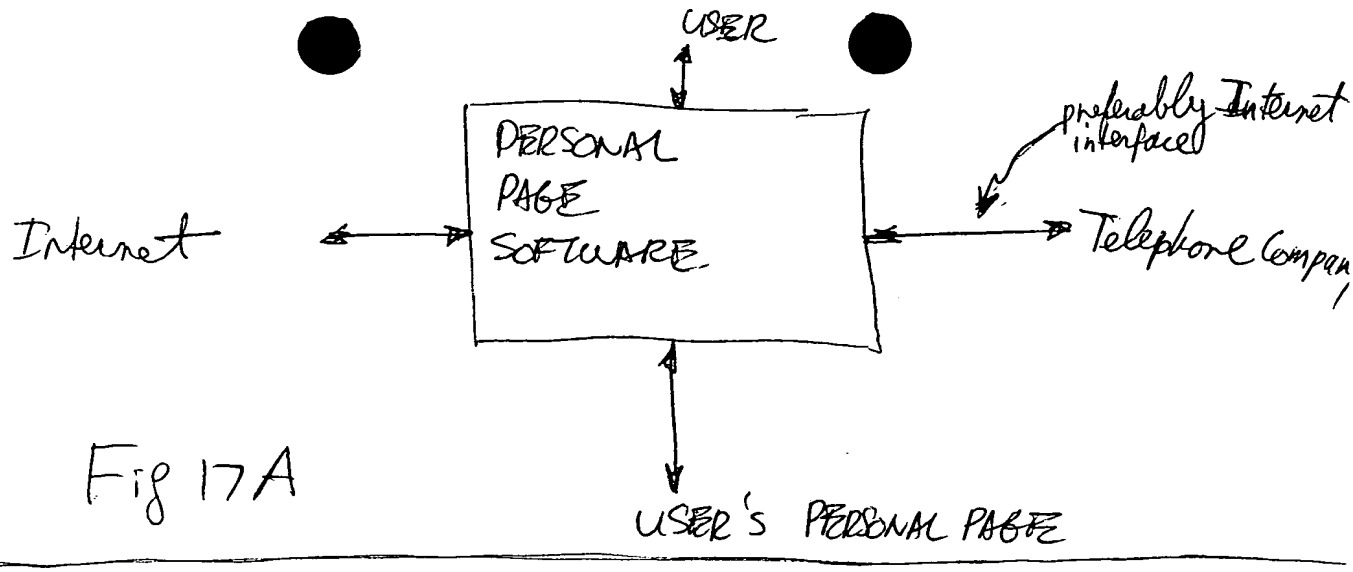


Fig 17A

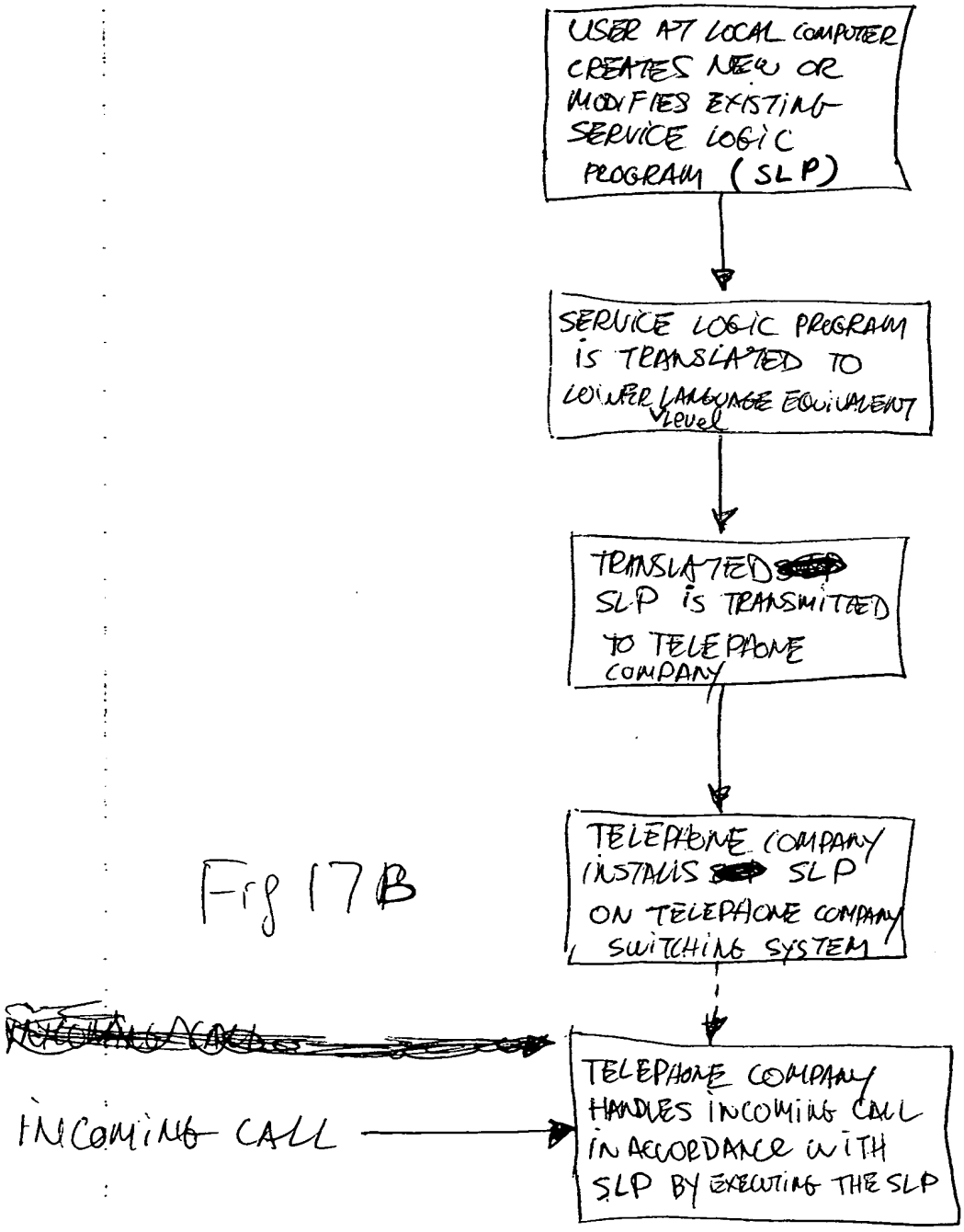


Fig 17B

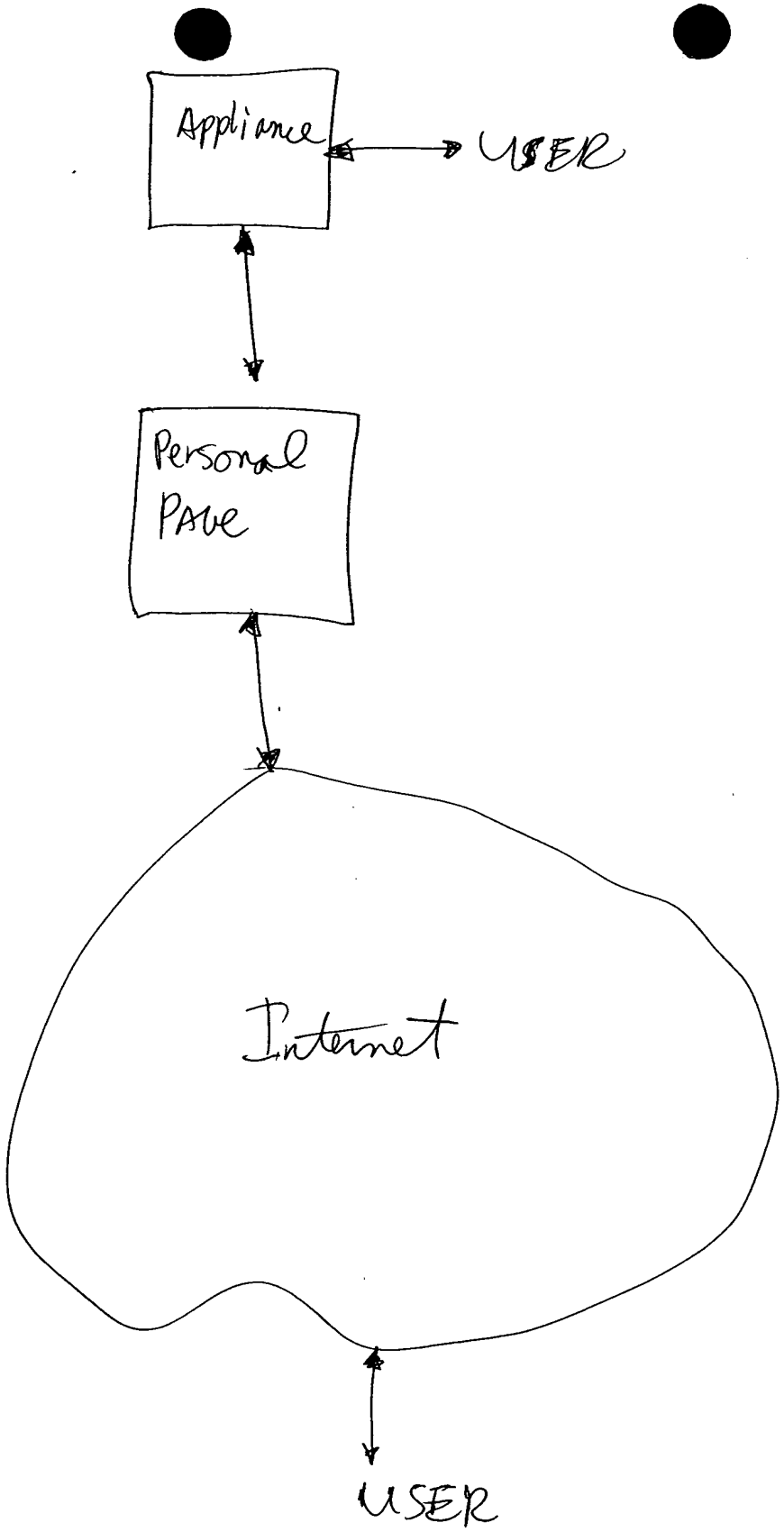


Fig. 18

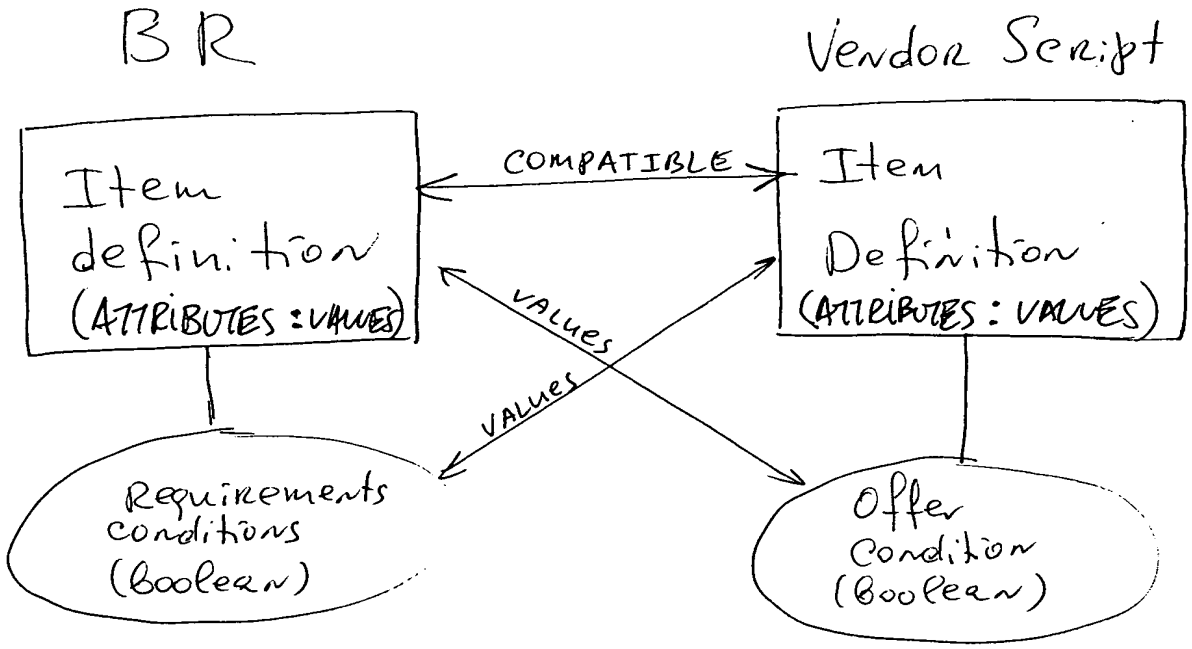

BR
Vendor Script
Item definition (ATTRIBUTES : VALUES)
COMPATIBLE
Item Definition (ATTRIBUTES : VALUES)
VALUES
VALUES
Requirements conditions (Boolean)
Offer Condition (Boolean)

Fig. 19

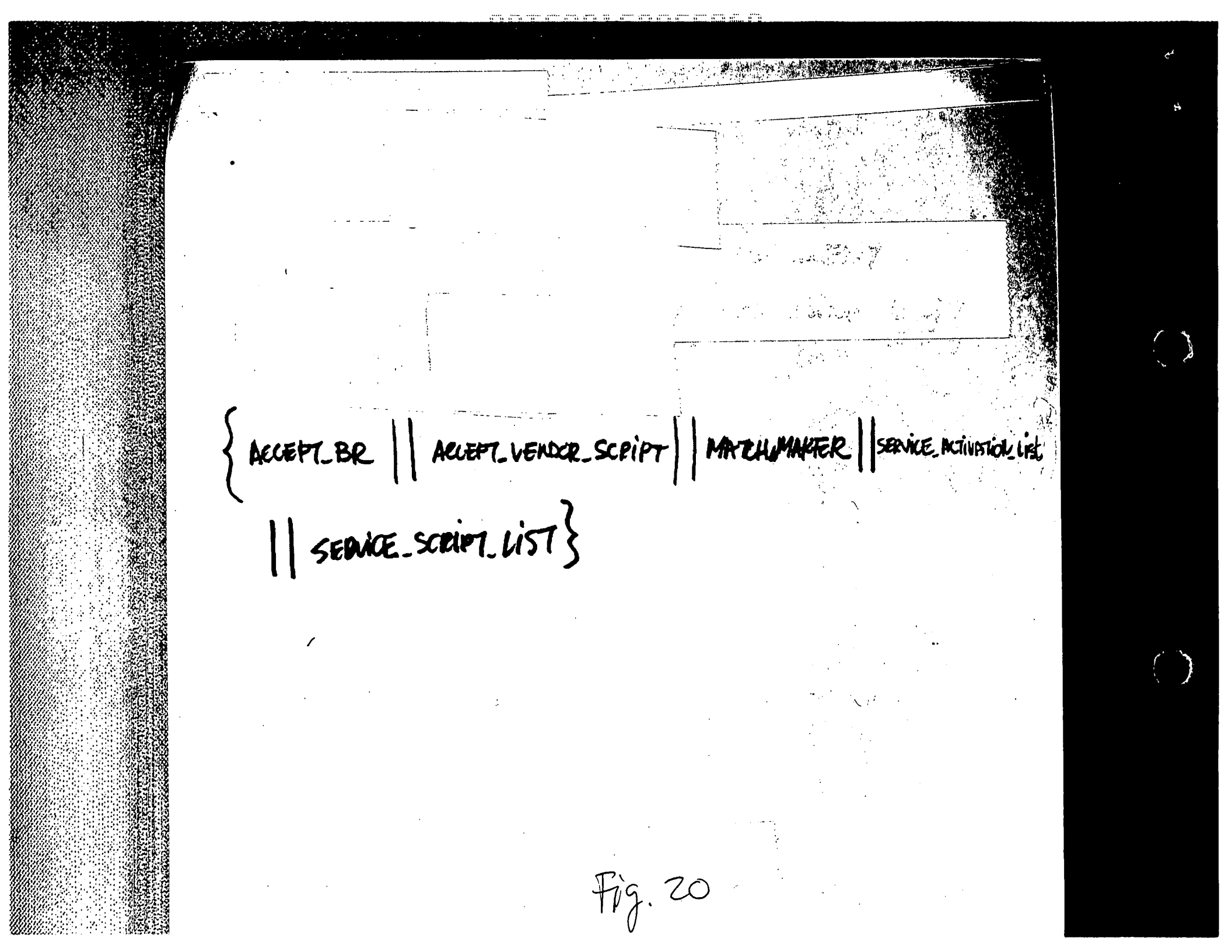

{ ACCEPT_BR || ACCEPT_VENDOR_SCRIPT || MATCHMAKER || SERVICE_ACTIVATION_LIST
|| SERVICE_SCRIPT_LIST }

Fig. 20

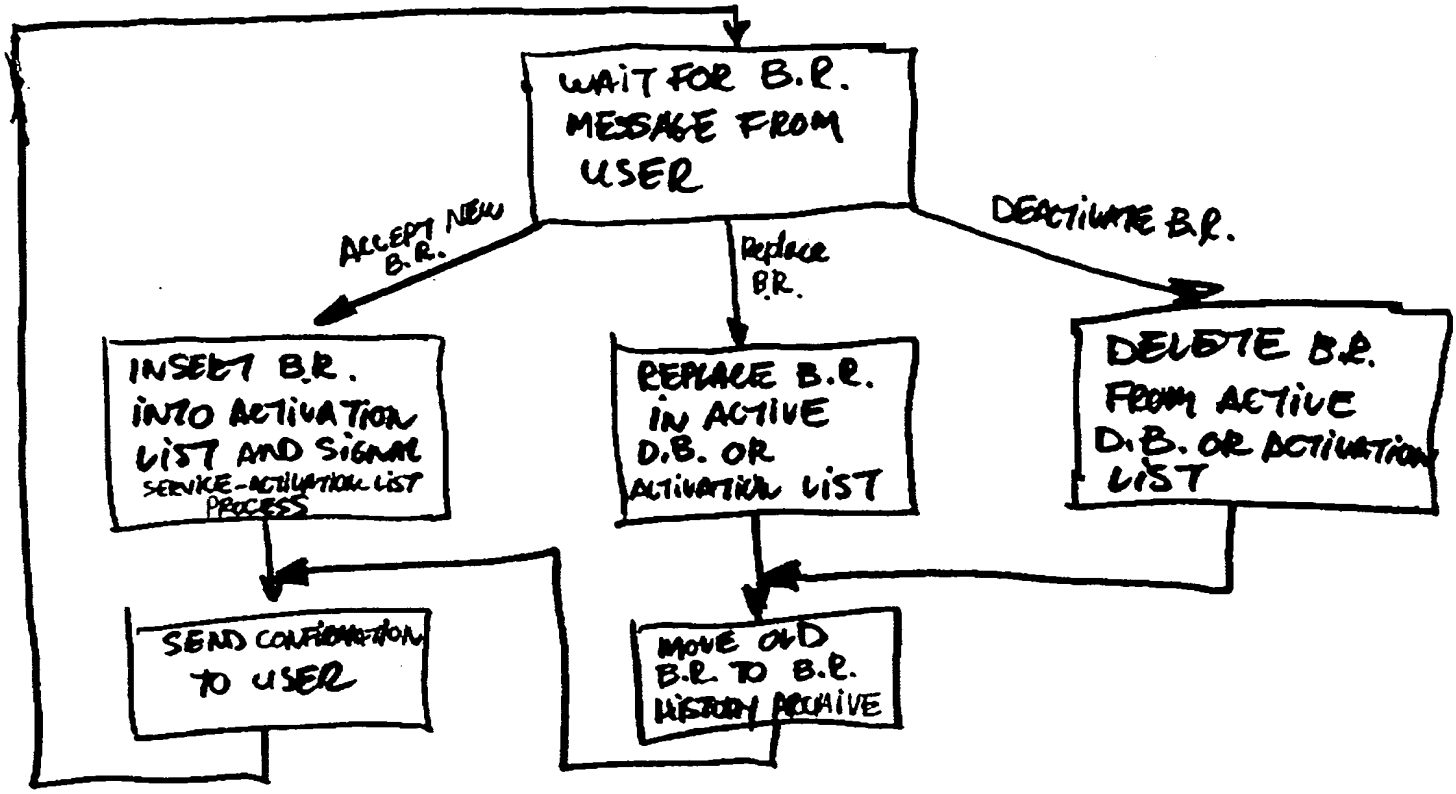

WAIT FOR B.R. MESSAGE FROM USER
ACCEPT NEW B.R.
Replace B.R.
DEACTIVATE B.R.
INSERT B.R. INTO ACTIVATION LIST AND SIGNAL SERVICE-ACTIVATION LIST PROCESS
REPLACE B.R. IN ACTIVE D.B. OR ACTIVATION LIST
DELETE B.R. FROM ACTIVE D.B. OR ACTIVATION LIST
SEND CONFIRMATION TO USER
MOVE OLD B.R. TO B.R. HISTORY ARCHIVE

Fig. 21

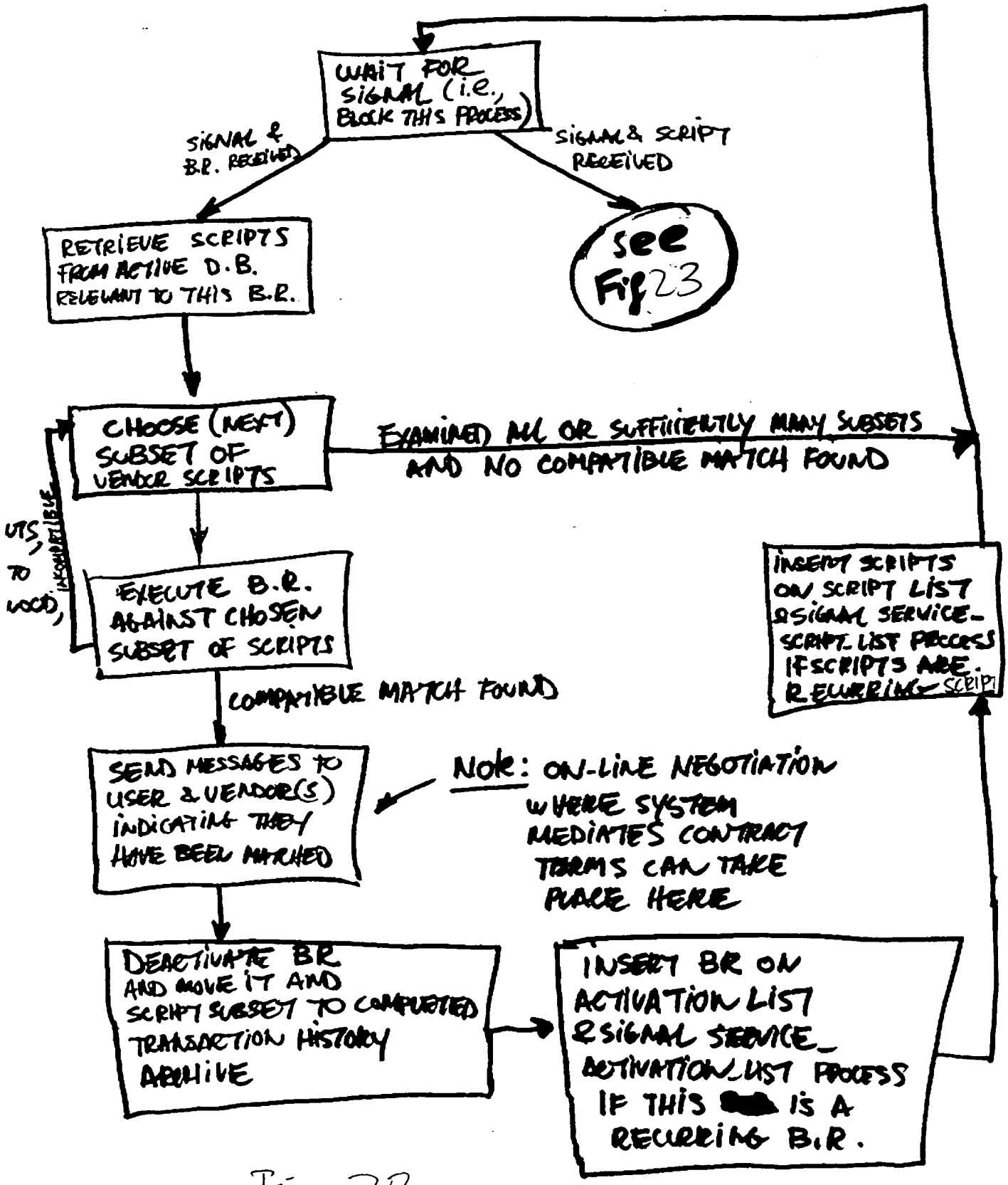

WAIT FOR SIGNAL (i.e., BLOCK THIS PROCESS)
SIGNAL & B.R. RECEIVED
SIGNAL & SCRIPT RECEIVED
RETRIEVE SCRIPTS FROM ACTIVE D.B. RELEVANT TO THIS B.R.
see Fig 23
CHOOSE (NEXT) SUBSET OF VENDOR SCRIPTS
EXAMINED ALL OR SUFFICIENTLY MANY SUBSETS AND NO COMPATIBLE MATCH FOUND
UTS, TO VOID, INCOMPATIBLE
EXECUTE B.R. AGAINST CHOSEN SUBSET OF SCRIPTS
INSERT SCRIPTS ON SCRIPT LIST & SIGNAL SERVICE-SCRIPT_LIST PROCESS IF SCRIPTS ARE RECURRING SCRIPT
COMPATIBLE MATCH FOUND
SEND MESSAGES TO USER & VENDOR(S) INDICATING THEY HAVE BEEN MATCHED
Note: ON-LINE NEGOTIATION WHERE SYSTEM MEDIATES CONTRACT TERMS CAN TAKE PLACE HERE
DEACTIVATE BR AND MOVE IT AND SCRIPT SUBSET TO COMPLETED TRANSACTION HISTORY ARCHIVE
INSERT BR ON ACTIVATION LIST & SIGNAL SERVICE_ ACTIVATION_LIST PROCESS IF THIS [redacted] IS A RECURRING B.R.

Fig. 22

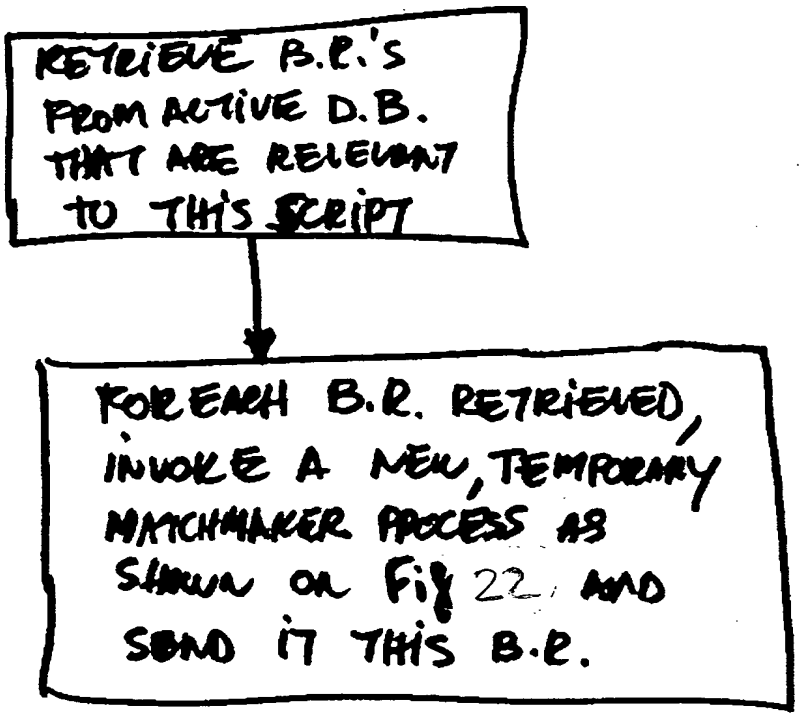


Fig 23

0055005 0055005

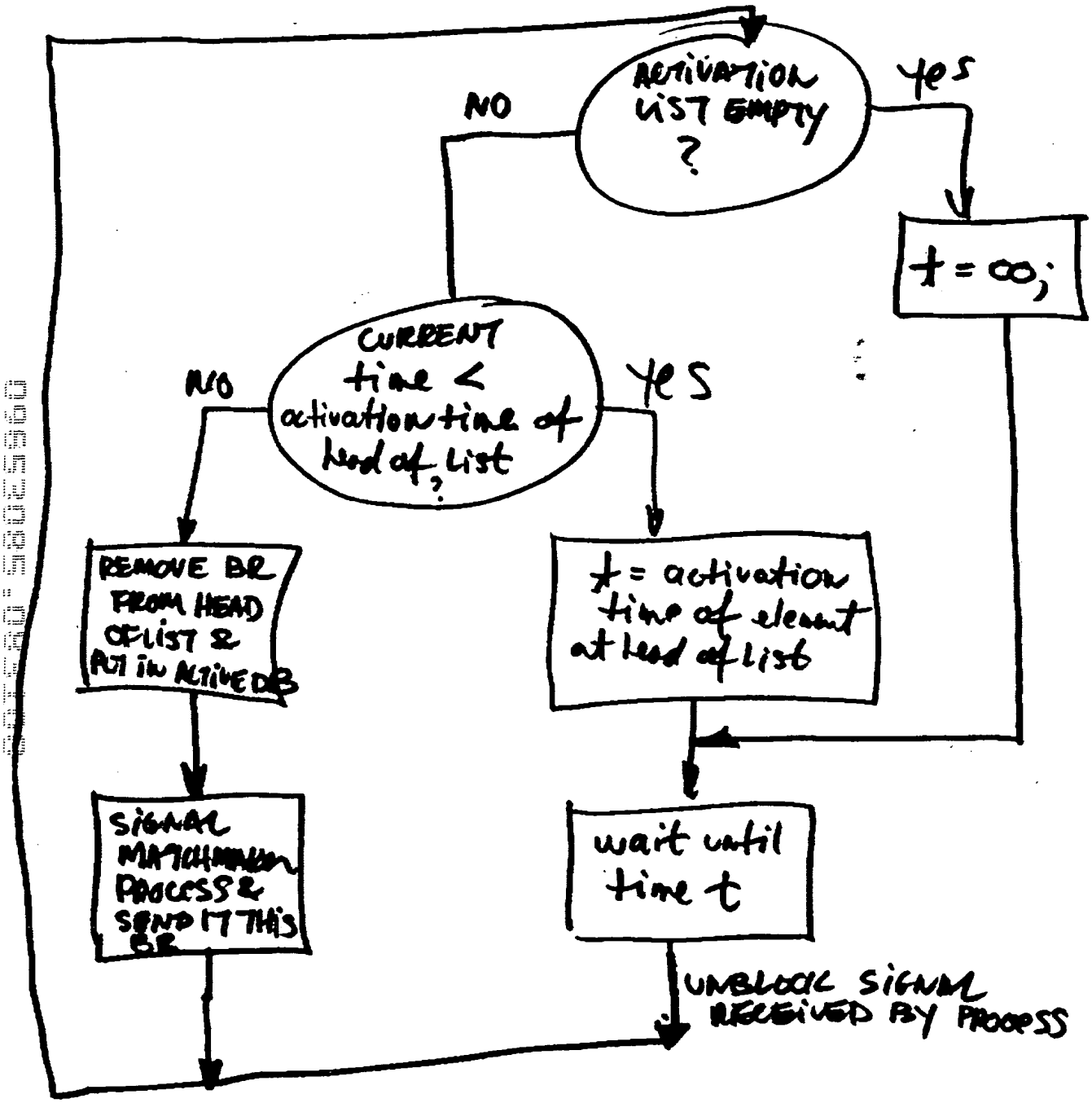

ACTIVATION LIST EMPTY ?
NO
YES
t = ∞;
CURRENT time < activation time of head of list ?
NO
YES
REMOVE BR FROM HEAD OF LIST & PUT IN ACTIVE DB
t = activation time of element at head of list
SIGNAL MATCHMAKER PROCESS & SEND IT THIS BR
wait until time t
UNBLOCK SIGNAL RECEIVED BY PROCESS

Fig 24